

**ABSTRACT OF THE DISCLOSURE**

A method, used in locating a mobile transmitter, includes providing a set of cross-correlation values, wherein each cross-correlation value is associated with a corresponding TDOA and/or FDOA estimate and is produced by cross-correlating a reference signal with a cooperating signal. The reference signal comprises a copy of a signal transmitted by the mobile transmitter as received at a first antenna and the cooperating signal comprises a copy of the same signal as received at a second antenna. The method further includes determining a most likely range of TDOA and/or FDOA estimates, and then identifying an optimal cross-correlation value within a subset of cross-correlation values corresponding to the most likely range of TDOA and/or FDOA estimates. The TDOA and/or FDOA value corresponding to the optimal cross-correlation value is then employed in calculating the location of the mobile transmitter.